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Vol. 6, No. 3. WASHINGTON, D. C. October, 1936.

Accidents.

Careless get hurt! By Randall R. Howard. Country Home. v. 60, no. 8. August, 1936. p. 36, 38.

Agriculture.

Agriculture's challenge to youth. By L. F. Livingston. Better Farm Equipment and Methods. v. 9, no. 1. September, 1936. p. 4-5.

Contribution of 1936 to long-time agricultural policy. By H.R. Tolley. Extension Division News. v. 18, no. 11. September, 1936. p. 1-4.

Farm imports and national prosperity. U.S. Agricultural Adjustment Administration. Washington, D. C., 1936. 11p.

Maine agriculture in 1935: a statistical presentation. 1936. 295p. Maine Agricultural Experiment Station. Bulletin no. 382.

Planning the 1937 farm program. U.S. Agricultural Adjustment Administration. Washington, D.C., 1936. 8p.

Process industries and rural stability. By W.R. Woolrich. Mechanical Engineering. v. 58, no. 7. July, 1936. p. 427-430. There is fundamental need for agricultural and engineering experiment stations to go down the road together in finding new ways of using farm products, new methods of adding soil fertility, new equipment for improving country life, and new devices for turning destructive forces of nature into agencies for public good. They will thus direct new forces toward the stabilization of both industry and agriculture for their supporting regions.

Study of the organization and management of farms in Grayson County, Virginia. By J.J. Vernon, T.M. Dean, and H.W. Hawthorne. 1936. 63p. Virginia Agricultural Experiment Station Bulletin no. 304.

Trends in West Virginia agriculture. By F.D. Cornell, Jr. 1936. 20p. West Virginia. Agricultural Experiment Station Bulletin no. 276.

Air Conditioning.

Air conditioning methods. By John Everetts, Jr. Refrigerating Engineering. v. 32, no. 3. September, 1936. p. 139-140, 152. Development of new comfort standards divides air conditioning methods into three major classifications: (1) evaporative cooling, (2) cooling with refrigeration, and (3) dehumidification.

Air Conditioning. (Cont'd)

Exit, Mr. Heat. By W.L. Benson. Better Homes and Gardens. v. 14, no. 11. July, 1936. p. 16-17, 40.

Healthful comfort cooling not an extravagance. By V.L. Sherman. American Builder. v. 58, no. 8. August, 1936. p. 66, 68, 70, 104.

Papers presented at the first annual conference on air conditioning, held at the University of Illinois, May 4 and 5, 1936. 154p. Illinois. Engineering Experiment Station. Circular no. 26.

Studies of summer air conditioning for domestic comfort at Grand Coulee Dam site. By Homer J. Dana and R.E. Lyle. 1935. 20p. State College of Washington. Engineering Experiment Station Bulletin no. 48.

Alcohol Fuel.

Alcohol by-products. By Samuel S. Bailey. New Agriculture. v. 18, no. 12. September, 1936. p. 8. Alcohol motor fuel vs. gasoline. By-product carbon dioxide from distillation process. CO_2 gas as aid to doctor. Medicinal values of carbonated water.

Power alcohol and farm relief. By Leo M. Christensen and others. New York. The Chemical foundation, 1936. 191p. The deserted village no. 3.

Synthetic gasolines in Belgium and France. Mechanical Engineering. v. 58, no. 6. June, 1936. p. 377-378. Belgian National Foundation for Scientific Research has just published report describing research on synthetic carbureting fuels.

Associations.

Proceedings of the Twelfth annual convention of the National Fertilizer Association, held at White Sulphur Springs, W. Va., June 8, 9, and 10, 1936. Published by the Association, 1936. 142p.

Barns.

Dreams come true with modernized barns. By E.T. Leavitt. New England Homestead. v. 109, no. 14. July 4, 1936. p. 1, 9.

Pen barn and milking room. By H.F. McColly and J.R. Rice. Hoard's Dairyman. v. 81, no. 14. July 25, 1936. p. 368, 383. Advantages: 1. Lower original cost - mainly because of saving on equipment. 2. Cows keep cleaner. 3. Produce as high or higher quality of milk or cream. 4. Cows are more comfortable and able to adjust themselves. 5. Number of animals cared for in given size pen barn is same or a few more than in same size barn fitted with stalls and stanchions for all cows. 6. Herd may be increased or decreased without additional expensive equipment, or causing expensive equipment to remain idle. 7. Stables need be cleaned only occasionally when most convenient. 8. Manure of better quality is produced. Disadvantages: 1. Takes

Barns. (Cont'd)

considerable more bedding. 2. More of chore to milk. 3. Bossy cows may make trouble. 4. Cows must be dehorned. 5. Dairy herd does not show off as well as when in stalls. 6. Milking room may be cold compared to some methods of dairy herd management.

Belts.

Durability tests of belt lacings and fasteners. By W.W. Carlson and G. A. Sellers. 1936. 20p. Kansas. Engineering Experiment Station. Bulletin no. 35.

Building Construction.

Adobe construction. By Harold C. Schwalen. Agricultural Engineering. v. 17, no. 9. September, 1936. p. 387-389. In adobe, farmer or rancher has satisfactory building material for construction of farm buildings at reasonable cost. With understanding of characteristics of material, and knowledge of special precautions necessary in adobe construction, its use is warranted in better types of house construction. Cost of first-class adobe construction in urban districts is comparable with that of brick construction, but for isolated rancher its use will result in considerable saving. Extent to which builder should go in following suggestions which have been made is governed by purpose for which building is constructed and by permanence desired.

Build out decay and termites by proper construction. By Lyman M. Forbes. American Builder and Building Age. v. 58, no. 5. May, 1936. p. 76, 77. Gives specifications for termite-proof and rot-proof construction.

Holding power of nails. By A.J. Deniston, Jr. Agricultural Engineering. v. 17, no. 7. July, 1936. p. 295, 320. Comparative tests were made of three types of 10-gauge nails: Screw shank nails, barbed nails, and smooth nails. They were driven two inches into blocks of dry, hard pine. Of 8 nails of each kind, five were withdrawn soon after having been driven, and three were left in block, exposed to weather and withdrawn 76 days later. Pull required to remove these nails is indicated in table.

Make it stick. By Carl Sigman and William Ward, Jr. Better Homes and Gardens. v. 14, no. 11. July, 1936. p. 24-25, 42-44.

Recent developments in lumber construction applicable to farm building. By Frank P. Cartwright. Agricultural Engineering. v. 17, no. 7. July, 1936. p. 291-292. Paper is confined to two important developments which should have wide and useful application in farm buildings, namely, increasing use of plywood, and possibilities of timber connector construction.

Dairy Farm Equipment.

Calf stanchions. Hoard's Dairyman. v. 81, no. 15. August 10, 1936. p. 396. Gives construction details for calf stanchions.

Dams.

Grouting seals Alcova dam. Engineering News-Record. v. 117, no. 10. September 3, 1936. p. 323-327. Ten miles of grout holes sunk into water bearing foundation rock to form blanket and curtain walls. Cut-offs of concrete built above the rock surface with curtains of grouted rock below to stop seepage under the compacted earth-fill section of the dam.

International Dam Congress discusses construction details. Engineering News-Record. v. 117, no. 12. Sept. 17, 1936. p. 415-417. In five separate sessions it discussed these five subjects: Joints in dams; facing of masonry and concrete dams; special cements; foundation studies, and stability of earth dams.

Program for Grand Coulee's second cofferdam. Engineering News-Record. v. 117, no. 14. October 1, 1936. p. 464-466. U-section cribs to permit gradual closure with stoplogs. Cribs of different design in upstream and downstream arms. Unwatering of present river channel set for latter part of December.

Selection of materials for rolled-fill earth dams. By Charles H. Lee. Proceedings of American Society of Civil Engineers. v. 62, no. 7. September, 1936. p. 1025-1042. Paper is confined to discussion of earth testing as aid to selection of materials. Pertinent fundamental principles of soil technology as developed from latest research and practices are drawn upon as basis for conclusions. These principles are supplemented by certain research findings in concrete technology.

Surface and sub-surface investigations, Quabbin dams and aqueduct. A symposium: Discussion. By Bayard F. Snow and Cle Singstad. Proceedings of American Society of Civil Engineers. v. 62, no. 6. August, 1936. p. 961-964.

Diesel Engines.

Application data: Caterpillar diesel engines. Peoria, Illinois, Caterpillar Tractor Co., 1936. 174p.

Drainage.

Inland control methods. By J. Lyell Clarke. Engineering News-Record. v. 117, no. 8. August 20, 1936. p. 266-269. Drainage of swamp areas and rendering water unfit for breeding when certain mosquito species are prevalent constitute the basic elements of control. Structures and facilities of modern life in large centers of population complicate effort directed toward eradication.

Electric Lines.

Analysis of flow in networks of conduits or conductors. By Hardy Cross. 1936. 32p. Illinois. Engineering Experiment Station. Bulletin no. 286.

Electric Lines. (Cont'd)

Power line cost lowered. By Fred E. Beane. New England Homestead. v. 109, no. 17. August 15, 1936. p. 2. New Hampshire sees further extension of electricity as result of new rural program.

T V A chooses wood in a lightning area. By Llwellyn Evans and H.C. Daniels. Electrical World. v. 106, no. 14. April 11, 1936. p.34-37. New types of structure devised and tested for portion of 154 Kv. line (Wilson to Norris dam). Severely exposed to lightning.

Electric Wiring.

Farm wiring problem. By H.G. Knoderer. Bridgeport, Conn., General Electric Company, 1936. 27p. Presented at the 30th annual meeting of American Society of Agricultural Engineers, Estes Park, Colorado, June 22nd to 25th, 1936.

Wired help for farm and home. Westinghouse Electric and Manufacturing Co. 1936. 14p.

Electricity-Distribution

Arizona's high place in farm electrification. Arizona Producer. v. 15, no. 12. September 1, 1936. p. 7. Nearby half the farm homes in Arizona that are valued at $500. or over, have electric service. Practically a third of all its farm dwellings are electrified, even counting those in remote sections of State where population is so small that building of transmission lines is economically infeasible.

Bonneville power cost study. Electrical World. v. 106, no. 31. August 1, 1936. p. 35, 122. Analysis of minimum cost of federal power delivered at receiving substations, based on absorption of output in fifteen years by 51 substations.

Companies to invest millions in rural electrification program. Electrical World. v. 106, no. 31. August 1, 1936. p. 45. Reports show more companies are undertaking extensive rural construction programs. Rural budgets for 1937 are higher.

Farm service worth while on city system. Electrical World. v. 106, no. 35. August 29, 1936. p. 132. Table gives value of rural load added on outskirts of system.

Rural electrification continues as major electrical activity. Electrical World. (News issue.) v. 106, no. 32. August 8, 1936. p. 7-8. Construction totals constantly on increase as rural electrification ramifications make news in nine states. Tide of rural electrification shows no signs of receding from record-breaking volume.

Rural electrification is a long time program. By M.J. Briggs. Hoosier Farmer. v. 21, no. 8. August, 1936. p. 3, 27. Vast amount of detail work required for legal and engineering aspects of county projects, yet progress of the movement in Indiana has been amazing.

Electricity-Distribution (Cont'd)

Serve 21 per cent of farms with dwellings. Electrical World. v. 106, no. 35. August 29, 1936. p. 99. Even in depression years number of electrically served farms increased in country as a whole, year by year, as these totals show: 1932, 709,449; 1933, 713,558; 1934, 743,954; 1935, 788,795. Compared with 177,561 at end of 1923 there has been more than a fourfold increase. Incidentally, it may be noted that this progress was made under private initiative, and that during same period rate of increase in number of farms served has greatly exceeded rate of domestic customers. This movement is now speeded by action of R.E.A.

Electricity on the Farm.

Cutting costs on a fruit farm. By R.A. Fulton. Electricity on the Farm. v. 9, no. 9. September, 1936. p. 7-8.

Electric brooders on Indiana farms. By Truman E. Hienton. Second Revision. 1936. 4p. Purdue University. Agricultural Experiment Station. Circular no. 187.

Electric ploughing in New Zealand. Rural Electrification and Electro-Farming. v. 12, no. 134. July, 1936. p. 18-19.

Electricity for heating sweet potato curing and storage house. By E.T. Swink. Virginia A. & M. College & Polytechnic Institute, Cooperative Extension Work in Agriculture and Home Economics, 1935. 5p. multigraphed.

Electricity on the poultry farm. 2d ed. Seattle, Washington, Agricultural Engineering Department of the Puget Sound Power & Light Company, 1936. 63p.

Electrify your farm for comfort, for convenience, for economy: REA Electrified Farm, Rosedale Farm, Herndon, Va. Published and distributed by the National Electrical Manufacturers Association, New York, N.Y., cooperating with the Rural Electrification Administration, 1936. 14p.

Planning for power. Electricity on the Farm. v. 9, no. 9, September 1936. p. 9-11.

Purdue will exhibit small electrified farm. Hoosier Farmer. v. 21, no. 9. September, 1936. p. 33. Will be demonstrated at farm electrification exhibit in Purdue building, during Indiana State Fair, September 5-12. Unique display, which was planned and built by specialists of Purdue University, will present information on wiring all farm buildings, and in addition will give Fair visitors comparative ideas on cost of operation for modern farm and home electrical equipment.

Rubber hen warms chick in latest brooder. Popular Mechanics. v. 65, no. 6. June, 1936. p. 848. Latest brooder contains electric heating pad which warms the backs of the tiny chicks just as if they

Electricity on the Farm. (Cont'd)

were snuggling under their mother's breast. Thermostatically controlled heating unit maintains temperature of pad at even 105 degrees. Pad is made of special heat-resisting sheet rubber which offers a soft, non-porous and sanitary surface. Advantages claimed for new brooder are that it permits natural functioning and development of chick's lungs, which are located in upper part of body, and eliminates danger of overheating, which causes lower resistance to disease.

Underground electric cable brooders. By J.H. Currie. Pacific Rural Press. v. 132, no. 1. July 4, 1936. p. 8.

Engine Design.

Engine types and requirements for preparation of fuels. By F.C. Mock. S.A.E. Journal. v. 39, no. 1. July, 1936. p. 257-264.

Erosion Control.

Blue grama grass for erosion control and range reseeding in the Great Plains and a method of obtaining seed in large lots. By Jess L. Fults. 1936. 8p. U.S. Department of Agriculture. Circular no. 402.

Comparison of runoff and erosion in prairie, pasture, and cultivated land. By J.E. Weaver and Wm. C. Noll. 1935. 37p. University of Nebraska. Conservation Department. Conservation and Survey Division. Bulletin no. 11.

Device that facilitates seeding of pasture terraces and contour furrows. By Wayne Austin. Soil Conservation. v. 2, no. 2. August, 1936. p. 38.

Experimental investigation of the hydraulics of drop inlets and spillways for erosion control structures. By Lewis Hanford Kessler. 1934. 66p. University of Wisconsin. Engineering Experiment Station Bulletin no. 80.

Measuring the vengeance of a single storm. By Henry R. Adams. Soil Conservation. v. 2, no. 2. August, 1936. p. 32-35.

Explosives.

Dynamite made from corn. Popular Mechanics. v. 66, no. 1. July, 1936. p. 33. Production of highly explosive dynamite from corn is one of latest developments of the chemical laboratory. It is result of recent discovery at University of Iowa of inexpensive method of extracting inositol, a sugar-like substance, from corn. Inositol is non-explosive form of alcohol, but when nitrated becomes a powerful solid explosive. It can be produced from waste by-products of manufacture of cornstarch.

Fans.

Automatic controls for residence installations with central fans. Heating and Ventilating. v. 33, no. 7. July, 1936. p. 53-57.

Fans. (Cont'd)

Keep the ventilating fan blades clean! By Hobart Beresford. Electricity on the Farm. v. 9, no. 9. September, 1936. p. 13. Chief advantages of electrically operated ventilating system in dairy barn and milk house are found in removal of steam caused by washing of cans and sterilizing of dairy utensils; making it possible to dry floor quickly after washing in milking wing, and reduction in accumulation of frost or sweating on walls and ceilings of stable during adverse weather conditions.

Specific characteristics of fans. By M.C. Stuart and J.B. Lusk. Heating, Piping and Air Conditioning. v. 8, no. 9. September, 1936. p. 507-511. Presents new system of fan characteristics, based upon well-known fan laws which lend themselves to direct solution of fan selection problems, serve to classify fans as to performance rather than form or design, and are directly useful in solution of great variety of fan application problems.

Farm Buildings.

Milk-house construction. By B.A. Jennings. 1935. 31p. Cornell University. Extension Service. Bulletin no. 330.

Practical farm milk house. By C.H. Jefferson. Michigan Farmer. v. 186, no. 6. September 12, 1936. p. 5, 17.

Farm Income.

Farmers' cash income for 1936 estimated at $7,850,000,000. Farm Implement News. v. 57, no. 21. October 8, 1936. p. 34. Table shows how tentative estimate for 1936 compares with cash income from sales of products and government payments, which began in 1934, in other years, as far back as 1924.

Gross farm income in 1935. Farm Implement News. v. 57, no. 20. September 24, 1936. p. 36. Gross income of U.S. farmers in 1935 was $8,508,000,000, compared with $7,276,000,000 in 1934. 1935 net income, $4,538,000,000, was largest since 1929. Due to lower cost of production it was 31 per cent larger than in 1934.

Income highest since 1930. Michigan Farmer. v. 186, no. 5. August 29, 1936. p. 3. Farm cash income, including governmental payments, in first half of 1936 was estimated by U.S. Bureau of Agricultural Economics at $3,291,000,000, an increase of 13 per cent over corresponding period in 1935, and highest since 1930. Income is still considerably below pre-depression years, but difference is partly made up by decreases of one-fourth to one-third in farm interest and tax charges, a decline of nearly 40 per cent in farm wage costs, and a drop of 20 per cent in prices of goods farmers buy.

Farm Machinery and Equipment.

Call for new separators. By Research Department Farm Equipment Institute. Farm Implement News. v. 57, no. 21. October 8, 1936. p. 30.

Farm Machinery and Equipment. (Cont'd)

Conserving "conserved" feed. By Harry G. Davis. Implement and Tractor. v. 51, no. 17. August 22, 1936. p. 13.

Corn Belt Conference introduces power farming contractor. Implement and Tractor. v. 51, no. 20. October 3, 1936. p. 16-17, 26. New factor to serve agriculture with equipment and power in unusual and peak load operations at reasonable cost. New profit opportunity to those who qualify.

Farm and machine: v. 3, comprising the report of the Institute for the year ended September 1935 and the proceedings of the Oxford Conference on Mechanization in Mixed Farming, 1936. Oxford University. Institute for Research in Agricultural Engineering. Oxford. Printed at the University press, 1936. 256p.

Farmer loads hay truck with labor-saving elevator. Popular Mechanics. v. 65, no. 6. June, 1936. p. 847.

Field stacking for Michigan beans. By H.R. Pettigrove. 1936. 18p. Michigan. Agricultural Experiment Station. Special bulletin no. 276.

Hawaii mechanizing agriculture. Facts About Sugar. v. 31, no. 7. July, 1936. p. 254. Rapid adoption of mechanical field methods an outstanding recent development. Answer to labor problem.

Hay buck from old car. By K.D. Van Wagenen. Western Far, Life. v.38, no. 10. May 15, 1936. p. 20. Wyoming rancher devises machine that saves two men and two teams in hayfield. Costs less than $100.

Keep fertilizer drill clean. By R.L. Cook. Michigan Farmer. v. 186, no. 1. July 4, 1936. p. 4, 12.

Labor-saving, money-making potato digger. Farm Implement News. v. 57, no. 19. September 10, 1936. p. 34. Farm management surveys show that three or more acres justify use of larger and heavier machines of elevator type.

Machines reduce labor on beets. Facts About Sugar. v. 31, no. 7. July, 1936. p. 255. Recent developments in mechanical methods through work of Government Engineers summarized at A.S.A.E. Annual Meeting.

Making maximum use of equipment at hand. By C.W. Smith. Implement and Tractor. v. 51, no. 20. October 3, 1936. p. 31-32.

Making the most from a little. Better Farm Equipment and Methods. v. 9, no. 1. September, 1936. p. 20-22. Necessity of conserving feed this year offers opportunity to emphasize advantages of silos, ensilage cutters, roughage mills and other essential fall farm equipment.

Farm Machinery and Equipment (Cont'd)

Making the most from a little. Better Farm Equipment and Methods. v. 9, no. 1. September, 1936. p. 20-22. Necessity of conserving feed this year offers opportunity to emphasize advantages of silos, ensilage cutters, roughage mills and other essential fall farm equipment.

"Merry-go-round" weeder for hilly farms. Popular Mechanics. v. 66, no. 1. July, 1936. p. 153. Blade is large, unsharpened steel ring about 8 feet in diameter. Six or eight spokes extend from hub on which 8-ft beam is bolted. To one end of beam a three or four-horse evener is fastened while a transverse platform, about five feet long is bolted to rear end. Driver stands on platform and his weight on either of center will cause the ring blade to dig into soil on that side. Thus, as ring encounters more resistance on one side than on other, it will rotate as weeder is pulled forward. As unsharpened blade has a tendency to pull weeds rather than cut them, it is claimed to be more effective in destroying them.

Mower adjustment. Arizona Producer. v. 15, no. 12. September 1, 1936. p.9. Good job often depends on a few simple changes in machine.

New machine for wheat farms. By Tudor Charles. Kansas Farmer. v.74, no. 16. August 1, 1936. p. 8. Combination field cultivator, drill, lister, blade weeder, and row-crop planter. Basic principle of machine is detachable nature of the different tools, and wide range of uses for which it will work. There is a wide drawbar which fits to tractor drawbar. On this may be clamped spring-tooth cultivator shanks which may be equipped with any kind of shovel. This is meant to be used immediately after harvest to loosen ground and hold moisture. Little later small listers are clamped to drawbar. These make small 20-inch furrows. They destroy weeds and hold moisture. Under ordinary conditions another cultivation will not be necessary before wheat seeding time, but if it should be weeder blades or cultivators may be used on ridges. Drill combination consists of lister bottoms, spaced at 20 inches, with seed boxes fastened to secondary bar above. Each seed box is separate. This drill puts seed down in moist earth in furrows which are about half as large as ordinary lister furrows. If weeds start in wheat any time after seeding, even following spring, field may be cultivated with weeder blades. These may also be used to level down ridges to permit easier harvesting or to loosen soil. For row-crop planting listers are spaced any width desired - usually 26 to 44 inches. Cultivation may be done with regular weeder blades. If combination system of wide-spaced rows and fallow are desired, seed box may be attached to only one lister, and space up to 13 feet in width left between each single row.

1935 Farm equipment census. Better Farm Equipment and Methods. v. 9, no. 1. September, 1936. p. 8-9. Production 55% above 1931 when last census was taken - still 46% below record year of 1929. Comparison with other years.

Farm Machinery & Equipment. (Cont'd)

Recent progress in the technique of agricultural machinery. Monthly Bulletin of Agricultural Science and Practice. v. 27, no. 8. August, 1936. p. 297-303. Increasing difficulties which have been encountered during last few years in use of agricultural machinery as a result of agricultural crisis, have brought about increased adaptation of machines to difficult agricultural conditions, and consequently great progress has been made both in respect of motor machines and of other implements used on farm, In this article emphasis has been laid throughout on importance of rubber in manufacture of agricultural machinery. Most of improvements in these machines made during last few years may be regarded as direct or indirect result of use of this material.

Rice harvesting and drying machinery. By Roy Bainer. Pacific Rural Press. v. 131, no. 24. June 13, 1936. p. 767.

Time to sell weed-control implements. By Research Department Farm Equipment Institute. Farm Implement News. v. 57, no. 19. September 10, 1936. p. 32.

Fences.

Electric fence - a warning. Pacific Rural Press. v. 132, no. 7. August 15, 1936. p. 162. Commercial unit for making hook-up is not very expensive, and cost of current is negligible, because current is not used except when animal touches fence. Commercial equipment steps current down to safe levels and has make and break arrangement which adds to safety. Engineers warn that no system should provide for flow of current for more than ten seconds at a time.

Electric fence must be properly handled. Washington Farmer. v. 61, no. 15. July 23, 1936. p. 11. Advantage of electric fencing is that only one wire is needed and posts may be merely stakes driven into ground three or four rods apart. It is important to obtain equipment that is approved by state electrical inspector and then install it strictly according to directions of manufacturer. It is not practical to try to connect electricity to ordinary fencing nor to connect any fence wire to electric circuit without specific equipment designed for that purpose. Single barbed wire ordinarily used for electric fencing is strung on insulators. Wood posts will not conduct current from wire when dry, but during rainy weather they are likely to destroy its effectiveness. Operating cost of electric fence is only few cents a month when properly installed and, because of its rather temporary construction may be moved from place to place.

Electric fencing commands respect: Editorial. Jersey Bulletin and Dairy World. v. 55, no. 34. August 19, 1936. p. 1085. System is especially useful on farms where rotation of improved pastures is practiced, because fence can be quickly erected, no gates are necessary and fewer posts are required. Adoption of electrified fences is one of most interesting phases of extension of electricity to farms of America.

Fences. (Cont'd)

Fence for your poultry. By H.N. Stapleton. New England Homestead. v. 109, no. 14. July 4, 1936. p. 3, 9. Gives guide in the selection of poultry fencing.

Fertilizer Placement.

Machine placement of fertilizers for snap beans in Florida. By G.A. Cumings and others. 1936. 43p. U.S. Department of Agriculture. Circular no. 399.

Proper fertilizer placement profitable. Better Farm Equipment and Methods. v. 9, no. 1. September, 1936. p. 24.

Special equipment puts fertilizer in right place. Farm Implement News. v. 57, no. 19. September 10, 1936. p. 36.

Fertilizer.

Artificial manure production on the farm. By W.A. Albrecht. 1936. 12p. Missouri. Agricultural Experiment Station. Bulletin no. 369.

Fireplaces.

Enjoy a fireplace in your back yard. By Martha Wirt Davis. Better Homes and Gardens. v. 14, no. 10. June, 1936. p. 24, 67-69.

Hearths beneath the sky. By Doris E. Browning. Country Home. v. 60, no. 8. August, 1936. p. 40.

Fires.

Fire! By George Kent. Country Home. v. 60, no. 8. August, 1936. p. 18-19. Fire last year killed 3,500 farmers, injured thousands more. It burned $100,000,000 to $150,000,000 worth of farm property.

Measuring fire weather and forest inflammability. By H. T. Gisborne, 1936, 59p. U.S. Department of Agriculture. Circular no. 398.

Flax.

Flax in the Philippines. By Tiburcio G. Garrido and Juan P. Torres. Philippine Journal of Agriculture. v. 7, no. 2. Second Quarter. 1936. p. 229-241.

Floods and Flood Control.

Flood protection data - progress report of committee: Discussion. By C.R. Pettis. Proceedings of American Society of Civil Engineers. v. 62, no. 6. August, 1936. p. 970-972.

Flood protection data - progress report of committee: Discussion. By John C. Hoyt and C.S. Jarvis. Proceedings of American Society of Civil Engineers. v. 62, no. 7. September, 1936. p. 1096-1099.

Floods and Flood Control. (Cont'd)

New cloudburst flood formula. By I. Gutmann. Engineering News-Record. v. 117,no. 14. October 1, 1936. p. 474-475. Proposed discharge formula for limited areas that fit well with runoff records of phenomenal floods in this country and abroad.

Practical aspects of flood control and reclamation of overflowed lands. By Ashley Green Classen. Austin, Texas, 1935. 80p. Texas. Reclamation Department. Bulletin no. 27.

Spring floods test Winooski Flood-Control System. By Charles D. Curran. Engineering News-Record. v. 117, no. 15. October 8, 1936. p. 510-513. Two completed flood-control dams on the Winooski River in Vermont, begun following 1927 flood, show possibilities of the projected seven dams in the flood of the past spring.

Symposium of floods features N.E.W.W.A. meeting. Engineering News-Record. v. 117, no. 14. October 1, 1936. p. 481-483. Public health aspects and hydrology of 1936 floods received major attention at four-day convention in New York City devoted to water works problems.

Flow of Water.

Simplified analysis of flow in water distribution systems. By J.J. Doland. Engineering News-Record. v. 117, no. 14. October 1, 1936. p. 475-477. Using the method of successive corrections to obtain a balance of head loss in all possible paths of travel the actual flow distribution in a water supply network can be quickly determined.

Varied flow in open channels of adverse slope: Discussion. By J.C. Stevens, F.T. Mavis, and Hunter Rouse and Merit P. White. Proceedings of American Society of Civil Engineers. v. 62, no. 6. August, 1936. p. 950-960.

Greenhouses.

New type of insulated greenhouse heated and lighted by Mazda lamps. By John M. Arthur and L.C. Porter. New York, Boyce Thompson Institute for Plant Research, Inc., 1935. p. 131-146.

Hay Drying.

Report by a committee on the preservation of grass and other fodder crops. London. H.M. Stationery Office, 1935. 35p. Agricultural Research Council. Report series no. 1.

Research in hay preservation. By Oscar Erf. New England Homestead. v. 109, no. 16. August 1, 1936. p. 3, 16.

Heat Transmission.

Thermal conductivity. By T.H. Ouderkirk. Aerologist. v. 12, no. 6, and 7. June and July, 1936. p. 23-28. Part four and series on heating and cooling calculations

Heating.

Electric heater circulates air drawn from floor. Popular Mechanics. v. 66, no. 1. July, 1936. p. 24. Shaped to draw cool air from floor, warm it and send it circulating through room, electric coil heater of portable type but without usual reflector has been placed on market. Its conical, curving base, which sets on floor, is surmounted by durable coil drawing 660 or 1,000 watts. This is protected by strong steel cage. Instead of focusing a hot beam as do some reflecting type heaters, this keeps warm air circulating, and in tests has maintained 1,000-cubic-foot room at 72 degrees while outside temperature is zero. 1,000-watt model maintains same temperature in 1,500 cubic feet. Heater is being used in auto trailers, tourist camps, summer cottages, and for emergency warmth in hospital rooms and homes.

Estimating heat quantities from electrical energy. Heating and Ventilating. v. 33, no. 7. July, 1936. p. 39-43. Methods of estimating loads are explained in this article, accompanied by most comprehensive tables showing heat equivalents of energy consumption of electrical equipment.

Houses.

A.F. of L. predicts much house building. Engineering News-Record. v.117, no. 8. August 20, 1936. p.284. Shortage of 13,196,000 homes predicted in business survey. Others think estimate too high.

Another successful bildcost home. By H.E. Wichers. Successful Farming. v. 34, no. 10. October, 1936. p. 56-57, 62-63.

Better homes build bigger pig profits. By Research Department, Farm Equipment Institute. Implement and Tractor. v. 51, no. 17. August 22, 1936. p. 15,32.

Five-room welded steel home at low cost. Popular Mechanics. v. 65, no. 6. June, 1936. p. 846-847. House is built of steel-panel sections welded together at factory and joined by arc welding on home site, eliminating use of nails. No framing is necessary, and not a piece of wood is used. Thick blanket of insulating material in every panel and over ceiling sections insures easy heating in winter and coolness in summer. Equipment includes forced-draft heating system with filter and air conditioner built in, which can be used in summer for cooking if desired. Modern plumbing, hot-water heater, water softener, electric lights and concealed outlets and pipes are other features.

Forest Service offers 2-story plywood house. American Builder. v. 58, no. 8. August, 1936. p. 51-53.

House that won. By Andrew S. Wing. Country Home. v. 60, no. 8. August, 1936. p. 22.

Low-priced home is built of steel sections. Popular Mechanics. v. 66, no. 1. July, 1936. p. 86.

Open-country home. By Llewellyn Price. Farm Journal. v. 60, no. 9. September, 1936. p. 13, 51.

Houses. (Cont'd)

Open-country home. By Llewellyn Price. Farm Journal. v. 60, no. 9. September, 1936. p. 13, 51.

Prefabricates house one could call "Home". American Home. v. 16, no. 1. June, 1936. p. 48, 54. Cost $3500 - $4000. Included in cost are materials foundation, heating, wiring, plumbing, painting, and erection.

Self-contained community for Purdue housing clinic. Engineering News-Record. v. 117, no. 10. September 3, 1936. p. 332-334. Five modern low-cost houses completed for the housing research project are served by private water supply and sewage systems.

Steel-frame house costs. By C. Merrill Barber. Engineering News-Record. v. 117, no. 8. August 20, 1936. p. 277. Tabulation shows breakdown of steel costs.

Hydraulic Research.

Hydraulic and structural work at Case school. By George E. Barnes and Fred L. Plummer. Engineering News-Record. v. 117, no. 11. September 10, 1936. p. 365-367.

Insect Control.

Invisible ray lures insects to death in trap. Popular Mechanics. v. 66, no. 1. July, 1936. p. 33. Ray itself is perfectly harmless, but it is used as a lure in ingenious trap for Japanese beetle. Finding that beetle's eye is "tuned" to receive light waves of length unseen by human eye, inventor designed a trap made of two reflectors, lower one filled with water and a half-inch layer of kerosene. When lamp is lighted kerosene becomes luminous, emitting a blue-white light of very low intensity which lures beetle to death.

Insulation.

Brick wall with metal foil insulation. Brick & Clay Record. v. 89, no.2. August, 1936. p. 48. System is merely that of placing metal between two furring strips, providing 3/4-inch air space on either side. Second furring strip then receives metal lath or other covering. Method of construction is simple. After wall has been built, standard 3/4-inch or 1-inch by 2-inch furring strips are fastened to masonry with suitable nails. In this case "Nodrill" concrete pins are recommended. If it is thought inadvisable to nail into 4-inch brick wall, strips may be fastened in other ways. Metal insulation, either electro-sheet copper or aluminum, is then tacked to furring strips, after which second furring strips are installed and lath attached in the customary manner.

Vital necessity for insulation explained. Lumber and Building Material Digest. v. 5, no. 8. August, 1936. p. 4-5.

Irrigation.

Concerning the construction and operation of the hydro-electric and irrigation systems of the South Coast and of the hydro-electric system

Irrigation. (Cont'd)

of utilization of the water resources of the government of Puerto Rico. By Antonio Lucchetti. 1936. 52p. Puerto Rico. Department of the Interior. Bulletin.

Economic limits of irrigation pumping. By J.B. Brown. Pacific Rural Press. v. 131, no. 16. April 18, 1936. p. 503, 506.

Importance of watersheds to irrigators. By W.W. McLaughlin. California Cultivator. v. 83, no. 16. August 1, 1936. p. 558.

Irrigation methods vs drought. Market Growers Journal. v. 59, no. 4. August 15, 1936. p. 331, 333.

"Rain irrigation" trials. Facts About Sugar. v. 31, no. 7. July, 1936. p. 253. Experiments with artificial rainmaker are being conducted by Amalagated Sugar Company on 300 acres of land to determine what effects regularly spaced showers will have in increasing sugar content of beets. It is not proposed to use rainmaker in place of orthodox methods of irrigation, but rather as supplement to provide gentle rain storms, advantages of which have long been understood. Rainmaker consists of light portable pipe, with numerous revolving sprinkler attachments and power pumping machinery. Water is taken from a nearby canal.

Use of irrigation water on farm crops. By A.E. Palmer. 1936. 51p. Canada. Department of Agriculture. Division of Field Husbandry. Dominion Experimental Farms. Publication no. 509.

Water vs drying the soil. By R.E. Stephenson. California.Cultivator. v. 83, no. 13. June 20, 1936. p. 484. Effective watering is possible only when there is adequate drying between water applications, especially if the soil is a heavy type, where water penetrates with difficulty and drainage is naturally restricted.

Labor.

Agricultural labor in the United States, 1915-1935: Selected list of references. Compiled by Esther M. Colvin and Josiah C. Folsom. Washington, D.C. 1935. 493 p. Mimeographed. U.S. Bureau of Agricultural Economics. Agricultural economics bibliography no. 64.

Farm wage and labor situation on April 1, 1936. Monthly Labor Review. v. 42, no. 6. June, 1936. p. 1654-1655. Tables show average farm wage rates, supply of and demand for farm labor, and number of persons employed per farm on April 1, 1936, as compared with January 1, 1936, January 1 and April 1, 1935, and the annual averages 1910-14.

Handbook of labor statistics; 1936 edition. U.S. Bureau of Labor Statistics. Washington, D.C., 1936. 1151p. Bulletin no. 616.

Increasing labor income. By G.L. Munroe. New England Homestead. v. 109, no. 13. June 20, 1936. p. 6. Machinery which saves human energy and lowers costs is worthy of investigation.

Land Utilization.

Maladjustments in land use in the United States: Part VI of the report on land planning. National Resources Board. Washington, D.C. 1935. 55p.

Lighting.

Electric lighting for the farm: Part 1, Lighting the farm home; Part 2, Lighting farm buildings. By L.C. Porter and E.W. Commery. Saint Joseph, Michigan, American Society of Agricultural Engineers, 1936. 16p. Paper presented at a joint session of the Farm Structures and Rural Electric Divisions of the American Society of Agricultural Engineers during the annual meeting of the Society at Estes Park, Colo., June 23, 1936.

Home and school lighting. By Florence E. Wright. Ithaca, N.Y., New York State College of Home Economics, Cornell University. 1936. 23p.

Lubrication.

Chemical structure of lubricating oils. By L.A. Mikeska. Industrial and Engineering Chemistry. v. 28, no. 8. August, 1936. p. 970-984. Report presents study of structure of lubricating oils on basis of synthetical rather than analytical work. Several series of hydrocarbons consisting of alkyl derivatives of benzene, napthalene, and diphenyl have been prepared to determine effect of chemical structure on their chemical and physical properties. Relationship is established for those hydrocarbons between their viscosity characteristics and chemical structures. This study includes such structural factors as length, unsaturation and branching of side chains. Effects on viscosity of other characteristics such as cyclization, reduction of aromatic to hydroaromatic rings, multiplicity of side chains, and allocation of latter in nucleus, are also considered.

Squeaking wheels. Better Farm Equipment and Methods. v. 9, no. 1. September, 1936. p. 6-7. Three things are important in the care of farm machinery; that they be lubricated often enough; that they be lubricated properly, and that lubricant be used that will stand up under the hard usage to which farm equipment is subjected.

Meters.

Formula for the adjustment of current velocity meters. By Otto Racker. Engineering News-Record. v. 117, no. 10. September 3, 1936. p. 327.

Small current meters for hydraulic models. By Nolan Page. Civil Engineering. v. 6, no. 8. August, 1936. p. 527-528.

Miscellaneous.

Agricultural adjustment, 1933 to 1935. U.S. Agricultural Adjustment Administration. Washington, D.C., 1936. 322p. Report of administration of the Agricultural Adjustment Act, May 12, 1933, to December 31, 1935.

Miscellaneous. (Cont'd)

Birth control of new American industries. By Francis P. Garvan. New York, The Chemical Foundation, 1934. 30p. The deserted village no. 4.

Digest of the purposes of current federal agencies. Revised August 15, 1936. U.S. Information Service. Washington, D.C., 1936. 38p.

Farm buying and industrial recovery; a survey of shipments of manufactured and industrial commodities from manufacturing areas to agricultural areas July 1, 1932 to June 30, 1935. U.S. Agricultural Adjustment Administration. Washington, D.C., 1936. 22p.

Impact of science upon society. By Josiah Stamp. Science. v. 84, no. 2176. September 11, 1936. p. 235-239. Suggestion has been made for inventions clearing house, to "cooperate scientific, social and industrial phases of invention, and to reduce lag between invention and application," managed by committee of scientists and committee of industrialists and bankers.

Machine age fallacy exploded. California Cultivator. v. 83, no. 17. August 15, 1936. pp 593. While machines may temporarily displace factory workers, they lower production costs, increase consumption and enlarge factory production so that factory actually takes on more workers; and 85% of nation's population that are employed outside manufacturing industry benefit, as they distribute, service and indirectly find work from increased production.

More machines - more jobs. Factory Management and Maintenance. v. 94, no. 5. May, 1936. p. 172-173, 37-38, 40 (advertising pages). More goods that are turned out and distributed to general public, higher our scale of living and better off our people. Every page of industrial history offers new proof that machine makes more jobs for more people.

Proceedings of the forty-ninth annual convention of the Association of Land-Grant Colleges and Universities, held at Washington, D.C., November 18-20, 1935. Edited by Charles A. McCue for the Executive Committee of the Association. Wilmington, Del., Cann Bros., Printers, 1936. 348p.

Rival to cotton. Arizona Producer. v. 15, no. 10. August 1, 1936. p. 7. New vegetable fiber called cotine. Can be produced at half cost. Samples of cotine have been submitted to textile experts at Warsaw and London, who are much interested, but state that satisfactory method of spinning it is yet to be worked out. Composition board, oil from seed, and cake suitable for stock feed, will be by-products of cotine.

Scientific method of thought in our national problems. By Francis P. Garvan. New York. The Chemical foundation, inc., 1936. 79p. The deserted village no.10.

Selected list of American agricultural books. Compiled in the U.S. Department of Agriculture Library. Washington, D.C., 1936. 41p mimeographed.

Miscellaneous. (Cont'd)

Working miracles with milk. By H.H. Slawson. Hoard's Dairyman. v. 81, no. 15. August 10, 1936. p. 391, 409.

World economic review, 1935. U.S. Bureau of Foreign and Domestic Commerce. Washington, D.C., 1936. 421p.

Mosquito Control.

Ending malaria in New Mexico. By C.M. Adams. Engineering News-Record. v. 117, no. 11. September 10, 1936. p.372-374. With a WPA project sponsored by the State and supervised by U.S. Public Health Service anopheline mosquito breeding places are being eliminated in the irrigated valley districts.

Mosquito abatement in Delaware. By W.S. Corkran. Engineering News-Record. v. 117, no. 11. September 10, 1936. p. 374-376. Three-phase plan was adopted; (1) Control of marsh breeding by ditching, dikes, tide and spill gates - this will eliminate about 50 per cent of total breeding; (2) control of swamp breeding by clearing ditches and fish stocking - will eliminate 25 per cent of total breeding; (3) Control of domestic breeding by educating town officials and citizens generally - will eliminate about 25 per cent of breeding.

Salt marsh problem. By R.J. Van Derwerker. Engineering News-Record. v. 117, no. 9. August 27, 1936. p. 304-307. Adequate ditching system serves to carry off tide and rain water, gives ready access to larvae-eating fish and forms the basis of control measures in tidal marsh areas where mosquito breeding conditions are ideal.

Paints.

Paint is treated for "sunburn" by acid-metal injections. Popular Mechanics. v. 66, no. 1. July, 1936. p. 40. Various metals are being combined in paint with phthalic acid, which cuts down penetration of ultraviolet rays and should extend life of exterior paints. This principle may also be applied to rubber, which deteriorates in sunlight.

Panel test evaluation of exterior house paints. By G.W. Ashman. Industrial & Engineering Chemistry. v. 28, no. 8. August, 1936. p. 934-939. Advantages of panel tests for evaluation of exterior house paint are well known, but limitations and disadvantages are not so generally appreciated. Investigation of various limiting factors has been in progress for several years, and has shown at least twenty variables in testing procedure which can definitely affect durability. Relative influence of each variable changes with type of formula being tested, and increases or decreases according to test conditions. This changing degree of importance probably explains some contradictions in results. Another major influence is accelerated nature of panel testing, a condition that may over emphasize certain characteristics and

Paints.

minimize others. Exact interpretation of panel tests results, in terms of probable durability on house, must, therefore, correct for this condition. Panel exposure tests are capable of high degree of accuracy, and offer convenient, speedy and economical method of paint evaluation, if necessary safeguards are taken.

Plows and Plowing.

Case centennial tractor plow. Farm Implement News. v. 57, no. 19. September 10, 1936. p. 28-30. First steel-plow factory in America and 100 years' tradition are behind it.

Poultry Houses and Equipment.

Comfortable hens. By W.H. Burrows. Country Gentleman. v. 106, no. 5. May, 1936. p. 19, 93.

Dry floors for poultry houses. California Cultivator. v. 83, no. 13. June 20, 1936. p. 488.

Poultry houses and equipment. By J.E. Dougherty and H.L. Bolton. Revised by H.L. Bolton and V.S. Asmundson. 1936. 76p. California. Agricultural Experiment Station. Bulletin no. 476.

Pumps.

Hydraulic valve operation controlled by small motor-driven pumps. By Harold Vagtborg. Engineering News-Record. v. 117, no. 10. September 3, 1936. p. 335-336. System of hydro-electric valve control for a water filtration plant which eliminates complicated piping to the control table and assures positive operation.

Rainfall and Runoff.

Application of rainfall intensity-frequency data. By D.L. Yarnell. Agricultural Engineering. v. 17, no. 9. September, 1936. p. 386-391. In discussing rainfall intensity data, it seems desirable that following factors which have not been completely covered in U.S.D.A. Miscellaneous Publication no. 204, entitled "Rainfall Intensity-Frequency Data," might be emphasized: (1) Runoff coefficient in rational formula, (2) time of concentration of a given watershed, and (3) construction of flood-frequency curves from the rainfall data.

Is the West drying up? By Joseph L. Dailey. Nation's Agriculture. v. 11, no. 11. September, 1936. p. 2-3, 10. Series of droughts are bound to occur in the West. They are not caused by cultivation of the Plains and cannot be prevented by building of ponds and lakes. Chart shows rainfall is increasing in what is believed to be driest part of West.

Refrigerants.

Carbon dioxide in its new field of usefulness. By J.G. Geosman. Ice & Refrigeration. v. 91, no. 3. September, 1936. p. 218-223.

Refrigerants. (Cont'd)

Study of thermodynamics and its importance in engineering. Expansion cylinders and their application with CO_2 compressors. Rules governing design of expansion cylinders in CO_2 practice. Liquid CO_2 cooling in stages with power recovery. Resume of preferred past practice. Solid CO_2 diagrams with and without hydraulic snow machines. Carbon dioside thermodynamics and a search for plausible explanation of "Entropy" in engineering.

Control of refrigerant in surface cooling systems. By D.D. Wile. Refrigerating Engineering. v. 32, no. 3. September, 1936. p. 144-148.

Refrigeration.

Electric refrigeration. By D.G. Ebinger. Michigan Farmer. v. 186, no. 3. August 1, 1936. p. 5, 15.

Farm and community refrigeration. Refrigerating Engineering. v. 32, no. 2. August, 1936. p. 96, 102. Description is given (1) of the meat curing situation in small commercial cold stores in the South; (2) of growing practice of freezer storage by small lockers; (3) quick freezing; (4) precooling, and (5) use of commercial refrigeration in small communities.

Freezing with kerosene. Michigan Farmer. v. 186, no. 3. August 1, 1936. p. 5, 15.

Precooling of fresh fruit. By T.E. Hienton and K.I. Fawcett. Agricultural Engineering. v. 17, no. 9. September, 1936. p. 377-378, 382.

Refrigerated transportation of deciduous fruits from California. By F.W. Allen. Refrigerating Engineering. v. 32, no. 3. September, 1936. p. 165-169, 180.

Refrigeration for the farm and dairy. By C.A. Cameron Brown. Oxford University, Institute for Research in Agricultural Engineering, 1936. 51p.

Refrigeration on the farm. By L.J. Smith. Washington Farmer. v. 61, no. 15. July 23, 1936. p. 6. Gives detailed cost of little refrigeration building, which was built entirely by outside labor in spring of 1933.

Research work in refrigeration. By D.F. Fisher. Ice & Refrigeration. v. 91, no. 3. September, 1936. p. 178-180. Report of the Committee on State and National Experimentation presented at annual convention of American Institute of Refrigeration. Information presented classified under three headings: 1 - Application of refrigeration. 2 - Refrigeration machinery and methods. 3 - Substitutes for or supplements of refrigeration.

Refrigerator Lockers.

Cold storage locker systems in Iowa. By John O. King. Refrigeration. v. 60, no. 2. August, 1936. p. 22-23.

Refrigerator Lockers. (Cont'd)

Cold storage unit for farm or ranch. Ice & Refrigeration. v. 91, no.3. September, 1936. p. 209-210. New cold storage plant built at Texas A. & M. College provides for meat processing and storing. Meets growing demand for farm or ranch unit.

Farmer's locker system. By Agnes Wright Spring. Refrigerating Engineering. v. 32, no. 2. August, 1936. p. 76-77, 80. Scheme proves a boon to farmers and a field for refrigeration.

Rural cold storage plants. By W.L. Walker. Refrigerating Engineering. v. 32,no. 2. August, 1936. p. 75, 112.

Refrigerators.

Development of "Freon-12" refrigerating machinery. By L.S. Morse. Refrigerating Engineering. v. 32, no. 2. August, 1936. p. 86-90. Part II. Machine details and performance.

Domestic and commercial ice refrigerators. By Clifford F. Holske. Refrigerating Engineering. v. 32, no. 3. September, 1936. p. 149-152.

Heat of sun's rays harnessed to operate refrigerator. Popular Mechanics. v. 65, no. 6. June, 1936. p. 848. Solution of water and ammonia circulates through coils to and from tank. Sun's rays warm coils, causing the solution to circulate and boiling off ammonia as gas, which then collects and liquefies in condenser and then flows through pipes to an evaporator containing hydrogen gas. As it evaporates here, ammonia absorbs heat from space surrounding evaporator, thus exerting refrigerating effect. Cool hydrogen-ammonia mixtures flows to absorber where ammonia and hydrogen are separated by absorption in water, hydrogen returning to work in evaporator while water-ammonia solution starts cycle anew in sun-heated coils.

New refrigerator cabinet uses dry ice. Ice & Refrigeration. v. 91, no.3. September, 1936. p. 181. Patent on solid carbon dioxide refrigerator granted to Walter L. Smith, Kansas City, Mo. Provides own source of power for circulating cold gases.

Refrigerator for farms operated by kerosene. Popular Mechanics. v. 66, no. 1. July, 1936. p. 70. Kerosene burner, lighted intermittently by small pilot light, heats solution of ammonia and water, driving off ammonia gas which is then condensed into liquid ammonia and passes into evaporator. Here it absorbs heat from ice trays, brine tank and air of food compartment. Complete cycle of burning and freezing takes five to eighteen hours, depending on room temperature.

Roofs.

Roof repairs with cotton sheeting. By Louis Dock, Jr. Engineering News-Record. v. 117, no. 15. October 8, 1936. p. 508-509. Unbleached muslin fabric, properly applied with suitable paint, makes a tight, waterproof and flexible patch that gives years of satisfactory service.

Roofs. (Cont'd)

Roofing for farm buildings. By W.C. Harrington. New England Homestead. v. 109, no. 15. July 18, 1936. p. 3, 8.

Rubber.

Age of man-made rubber. Popular Mechanics. v. 65, no. 6. June, 1936. p. 860-862. Two synthetic rubbers being produced in United States. One called thiokol is manufactured by Thiokol Corporation, and other, duprene is produced of E.I. du Pont de Nemours & Co., Inc. Chief advantage of man-made product is resistance to destruction by oils, chemicals and gases. One grade of crude thiokol is able to do service in temperatures between -30 to 200 degrees Fahrenheit. Chief ingredients of thiokol are sulphur, salt and natural gas, all of which are abundant in United States. Duprene, is made of such cheap and common substances as coal, limestone and hydrochloric acid. One of great advantages of duprene is ease of vulcanization. Whereas natural rubber must be vulcanized in presence of sulphur, duprene requires only heat and pressure to make its composition permanent.

Silt.

Serious silt problem seen at Loup River. Electrical World. News issue. v. 106, no. 32. August 8, 1936. p. 6-7. Will construct huge settling basin which will collect silt and sand in Loup and keep it from entering canal. Desilting basin is more than 10,000 ft. long and 200 ft. wide and will hold water diverted into it, kept at constant level by means of skimming weir at upper end.

Silting of reservoirs. By Henry M. Eakin. 1936. 142p. U.S. Department of Agriculture. Technical Bulletin no. 524.

Silting of the O'Shaughnessy reservoir. By A.M. Edwards. Civil Engineering. v. 6, no. 8. August, 1936. p. 511-512. Tells some of results of silt investigation made of O'Shaughnessy reservoir, near Columbus, and describes method of conducting survey.

Stable channels in erodible material: Discussion. By V.V. Tchikoff and W.M. Griffith. Proceedings of American Society of Civil Engineers. v. 62, no. 6. August, 1936. p. 888-909.

Soil Conservation.

Cover crops for soil conservation. By Walter V. Kell and Roland McKee. 1936. 14p. U.S. Department of Agriculture. Farmers' Bulletin no. 1758.

Is soil conservation the answer to the farm problem? U.S. Agricultural Adjustment Administration. Washington, D.C., 1936. 14p. Community Discussion Paper no. 1.

Soil and water conservation. Engineering News-Record. v. 117, no. 14. October 1, 1936. p. 478-480. Upstream engineering conference in Washington discusses many subjects related to the conservation of soil and water at headwaters of rivers. Lack of adequate engineering condemned.

Soil Conservation. (Cont'd)

Watershed and hydrologic studies in soil conservation. By C.E. Ramser. Agricultural Engineering. v. 17, no. 9. September, 1936. p.373-376. Objects of studies: 1. To determine effect of erosion control practices and land use upon conservation of water for agricultural purposes, such as irrigation and domestic farm supplies, and for public utility purposes, such as water power and urban water supplies. 2. To determine effect of erosion control practices and land use upon control of floods that destroy crops, damage soil fertility on agricultural bottom lands, and cause damage to or destruction of municipal property. 3. To determine rates and amounts of runoff and eroded soil material from rains of different amounts and intensities, for use in economic design of erosion control and flood control structures.

Soil Mechanics.

Soil mechanics notes - II. Engineering News-Record. v. 117, no. 8. August 20, 1936. p. 270-273. Summaries of important practical information extracted from selected papers presented at the International Conference on Soil Mechanics and Foundation Engineering.

Soil Moisture.

Role of the capillary potential in the dynamics of soil moisture. By Willard Gardner. Journal of Agricultural Research. v. 53, no. 1. July 1, 1936. p. 57-60.

Soils.

Physical changes in soils of Southern high plains due to cropping and wind erosion, and the relation between the $\frac{\text{sand + silt}}{\text{clay}}$ ratios in these soils. By Harley A. Daniel. Journal of American Society of Agronomy. v. 28, no. 7. July, 1936. p. 570-580.

Standard tests for soils used in engineering. Science. v. 84, no. 2172. August 14, 1936. p. 150. New committee with tentative title "Soils for engineering purposes" is to be organized by American Society for Testing Materials.

Spray Removal.

Spray residues and their removal from apples. By Walter S. Hough. 1936. 20p. Virginia Agricultural Experiment Station. Bulletin no. 302.

Sprays and Spraying Equipment.

Stationary equipment for orchard spraying and the manufacture of home-made liquid lime-sulphur. By F.H. Ballou. 1936. 26p. Ohio. Agricultural Experiment Station Bulletin no. 572.

Storage.

Always have fresh vegetables. By C.L. Vincent. Oregon Farmer. v. 59, no. 19. September 17, 1936. p. 12, 17. Storage makes good winter supply possible.